

Remarks

In the October 23, 2001 Office Action, the Examiner rejected claims 1-18 under 35 U.S.C. § 112, first paragraph. The Examiner rejected claims 1-18 under 35 U.S.C. § 102 as being anticipated by Shalon, et al. The Examiner rejected claims 1-18 under 35 U.S.C. § 102 as being anticipated by the U.S. Patent to Trulson, et al. 5,578,832. The Examiner rejected claims 1-18 under 35 U.S.C. § 103 as being unpatentable over Brown, et al. U.S. Patent No. 5,807,522 and Shalon, et al. in view of Trulson, et al.

By this Amendment, Applicants' attorney has amended each of the independent claims of the application to remove the word "sequentially" from the each of the independent claims thereby eliminating the rejection under 35 U.S.C. § 112.

Applicants' attorney has also amended each of the independent claims to make it clear that three or more calibration dye spots as well as three or more dyes are required for each of the independent claims. Clearly, these features are neither taught, disclosed nor discussed by any of the prior art references cited by the Examiner taken either alone or in combination with one another. In this respect, the remarks contained in the prior amendment dated July 5, 2001 are applicable. Also, the Examiner is invited to consider the following remarks.

Two color microarrays are widely described. Correction is not normally done because the emission spectra simply do not overlap. Three color microarrays are not found in the literature. Three-color crosstalk correction as only provided by the present invention is needed because it is more difficult to find three or more colors that do not have overlapping spectra. Consequently, the method and system of the present invention for automatically creating crosstalk-corrected data of a microarray is both novel and not obvious.

Furthermore, computations for corrections between two and three or more colors are different. The present specification shows both methods. The two-color method

uses simple algebra to solve for correction factors. However, when three or more colors are provided matrix math is utilized.

Consequently, in view of the above and in the absence of art already of record, Applicants' attorney respectfully submits the application is in condition for allowance which allowance is respectfully requested.

Respectfully submitted,

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By



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims

1. (Thrice Amended) A method for automatically creating crosstalk-corrected data of a microarray wherein crosstalk is caused by overlapping dye emission spectra, the method comprising:

providing a microarray substrate having three or more calibration dye spots, each of the calibration dye spots comprising a single pure dye;

for each of the calibration dye spots, [sequentially] generating a dye image containing at least one of the calibration dye spots for each of a plurality of output channels;

for each of the calibration dye spots, measuring an output of each of the output channels to obtain output measurements;

computing a set of correction factors from the output measurements; and

applying the set of correction factors to data obtained from the [sequentially] generated microarray images containing spots having three or more dyes with excitation or emission spectra to obtain crosstalk-corrected data.

10. (Thrice Amended) A system for automatically creating crosstalk-corrected data of a microarray wherein crosstalk is caused by overlapping dye emission spectra, the system comprising:

a microarray substrate having three or more calibration dye spots, each of the calibration dye spots comprising a single pure dye;

an imager having a plurality of output channels wherein for each of the calibration dye spots the imager [sequentially] generates a dye image containing at least one of the calibration dye spots for each of the output channels;

means for measuring an output of each of the output channels for each of the calibration dye spots to obtain output measurements;

means for computing a set of correction factors from the output measurements;

and

means for applying the set of correction factors to data obtained from the [sequentially] generated microarray images containing spots having three or more dyes with excitation or emission spectra to obtain crosstalk-corrected data.